

CLAIMS

[C001] 1. A method of making an electrical cable, said method comprising:

bonding a plurality of electrical conductors to respective neighboring ones of said electrical conductors to form a ribbon, said electrical conductors being electrically insulated from said respective neighboring ones;

folding said ribbon to form cable assembly, each of said electrical conductors traversing the width of said cable assembly at least twice;

optionally bonding said cable assembly; and

optionally coiling said cable assembly.

[C002] 2. The method of claim 1 wherein said electrical conductors do not describe spirals around said cable assembly.

[C003] 3. The method of claim 1 wherein said act of folding said ribbon comprises bending said ribbon to form a corner.

[C004] 4. The method of claim 1 further comprising folding lengthwise said cable assembly.

[C005] 5. The method of claim 1 further comprising applying a bonding layer to said ribbon, said bonding layer being optionally electrically insulating.

[C006] 6. The method of claim 5 further comprising exposing said bonding layer to a bonding stimulus.

[C007] 7. The method of claim 6 wherein said bonding stimulus is selected from a group consisting of electromagnetic radiation, mechanical stimuli, and chemical stimuli.

[C008] 8. The method of claim 1 wherein said act of bonding each of a plurality of electrical conductors comprises bonding said plurality of electrical conductors to a cable substrate.

[C009] 9. The method of claim 8 wherein said cable substrate is electrically insulating.

[C010] 10. The method of claim 8 wherein said plurality of electrical conductors are spaced apart from said respective neighboring ones.

[C011] 11. The method of claim 8 wherein each of said plurality of electrical conductors has a non-rectangular cross section.

[C012] 12. The method of claim 11 further comprising rolling flat said ribbon prior to said act of folding.

[C013] 13. The method of claim 1 further comprising:

electrically coupling at a first end of said cable assembly a subset of said electrical conductors to produce a first coupled subset leaving an uncoupled remainder of said electrical conductors; and

electrically coupling at a second end of said cable assembly said uncoupled remainder of said electrical conductors to produce a second coupled subset.

[C014] 14. The method of claim 13 wherein said first end and said second end are at opposite ends of said cable assembly.

[C015] 15. The method of claim 13 wherein:

members of said first coupled subset have different respective lengths; and

members of said second coupled subset have lengths in one-to-one correspondence with said different respective lengths of said members of said first coupled subset.

[C016] 16. The method of claim 13 further comprising producing a first insulating gap at a first gap location along the length of said first coupled subset.

[C017] 17. The method of claim 16 further comprising producing a second insulating gap at a second gap location along the length of said second coupled subset.

[C018] 18. The method of claim 8 wherein said act of bonding each of a plurality of electrical conductors comprises bonding said plurality of electrical conductors to opposite faces of said cable substrate.

[C019] 19. The method of claim 8 wherein said electrical conductors are disposed on an outer surface of said cable assembly.

[C020] 20. The method of claim 8 wherein said act of folding said ribbon comprises folding said ribbon around an insulating strip.

[C021] 21. The method of claim 8 wherein said act of bonding a plurality of electrical conductors comprises forming said electrical conductors into diagonal patterns.

[C022] 22. The method of claim 21 wherein said act of bonding a plurality of electrical conductors further comprises:

forming said diagonal patterns on opposite faces of said cable substrate;

electrically coupling opposite face pairs of said electrical conductors at edges of said cable substrate.

[C023] 23. The method of claim 21 wherein said act of bonding a plurality of electrical conductors further comprises:

forming said diagonal patterns on opposite faces of said cable substrate;

forming coupling holes through said opposite faces of said cable substrate;

and

electrically coupling opposite face pairs of said electrical conductors through said coupling holes.

[C024] 24. The method of claim 8 wherein said act of bonding a plurality of electrical conductors comprises depositing an electrically conducting ink on said cable substrate.

[C025] 25. The method of claim 8 wherein said act of bonding a plurality of electrical conductors comprises:

depositing an electrically conducting layer on said cable substrate; and

removing a quantity of said electrically conducting layer to leave said plurality of electrical conductors.

[C026] 26. A method of making an electrical cable, said method comprising:

bonding a plurality of electrical conductors to a cable substrate, respective neighboring ones of said electrical conductors being spaced apart, to form a ribbon, said electrical conductors being electrically insulated from said respective neighboring ones;

folding said ribbon to form cable assembly, each of said electrical conductors traversing the width of said cable assembly at least twice;

optionally bonding said cable assembly; and

optionally coiling said cable assembly.

[C027] 27. The method of claim 26 wherein said electrical conductors do not describe spirals around said cable assembly.

[C028] 28. The method of claim 26 wherein said act of folding said ribbon comprises bending said ribbon to form a corner.

[C029] 29. The method of claim 26 further comprising folding lengthwise said cable assembly.

[C030] 30. The method of claim 26 further comprising applying a bonding layer to said ribbon, said bonding layer being optionally electrically insulating.

[C031] 31. The method of claim 30 further comprising exposing said bonding layer to a bonding stimulus.

[C032] 32. The method of claim 31 wherein said bonding stimulus is selected from a group consisting of electromagnetic radiation, mechanical stimuli, and chemical stimuli.

[C033] 33. The method of claim 26 wherein said cable substrate is electrically insulating.

[C034] 34. The method of claim 26 wherein each of said plurality of electrical conductors has a non-rectangular cross section.

[C035] 35. The method of claim 34 further comprising rolling flat said ribbon prior to said act of folding.

[C036] 36. The method of claim 26 further comprising:

electrically coupling at a first end of said cable assembly a subset of said electrical conductors to produce a first coupled subset leaving an uncoupled remainder of said electrical conductors; and

electrically coupling at a second end of said cable assembly said uncoupled remainder of said electrical conductors to produce a second coupled subset.

[C037] 37. The method of claim 36 wherein said first end and said second end are at opposite ends of said cable assembly.

[C038] 38. The method of claim 36 wherein:

members of said first coupled subset have different respective lengths; and

members of said second coupled subset have lengths in one-to-one correspondence with said different respective lengths of said members of said first coupled subset.

[C039] 39. The method of claim 36 further comprising producing a first insulating gap at a first gap location along the length of said first coupled subset.

[C040] 40. The method of claim 39 further comprising producing a second insulating gap at a second gap location along the length of said second coupled subset.

[C041] 41. The method of claim 26 wherein said act of bonding each of a plurality of electrical conductors comprises bonding said plurality of electrical conductors to opposite faces of said cable substrate.

[C042] 42. The method of claim 26 wherein said electrical conductors are disposed on an outer surface of said cable assembly.

[C043] 43. The method of claim 26 wherein said act of folding said ribbon comprises folding said ribbon around an insulating strip.

[C044] 44. The method of claim 26 wherein said act of bonding a plurality of electrical conductors comprises forming said electrical conductors into diagonal patterns.

[C045] 45. The method of claim 44 wherein said act of bonding a plurality of electrical conductors further comprises:

forming said diagonal patterns on opposite faces of said cable substrate;

electrically coupling opposite face pairs of said electrical conductors at edges of said cable substrate.

[C046] 46. The method of claim 44 wherein said act of bonding a plurality of electrical conductors further comprises:

forming said diagonal patterns on opposite faces of said cable substrate;

forming coupling holes through said opposite faces of said cable substrate;

and

electrically coupling opposite face pairs of said electrical conductors through said coupling holes.

[C047] 47. The method of claim 26 wherein said act of bonding a plurality of electrical conductors comprises depositing an electrically conducting ink on said cable substrate.

[C048] 48. The method of claim 26 wherein said act of bonding a plurality of electrical conductors comprises:

depositing an electrically conducting layer on said cable substrate; and

removing a quantity of said electrically conducting layer to leave said plurality of electrical conductors.

[C049] 49. An electrical cable comprising:

a plurality of electrical conductors bonded to respective neighboring ones of said electrical conductors to form a ribbon, said electrical conductors being electrically insulated from said respective neighboring ones,

said ribbon being folded to form cable assembly, each of said electrical conductors traversing the width of said cable assembly at least twice,

said cable assembly optionally being bonded,

said cable assembly optionally being coiled.

[C050] 50. The electrical cable of claim 49 wherein said electrical conductors do not describe spirals around said cable assembly.

[C051] 51. The electrical cable of claim 49 wherein said act of folding said ribbon comprises bending said ribbon to form a corner.

[C052] 52. The electrical cable of claim 49, said cable assembly being folded lengthwise.

[C053] 53. The electrical cable of claim 49 further comprising a bonding layer disposed on said ribbon, said bonding layer being optionally electrically insulating.

[C054] 54. The electrical cable of claim 49 further comprising a cable substrate, said plurality of electrical conductors being bonded to said cable substrate.

[C055] 55. The electrical cable of claim 54 wherein said cable substrate is electrically insulating.

[C056] 56. The electrical cable of claim 54 wherein said plurality of electrical conductors are spaced apart from said respective neighboring ones.

[C057] 57. The electrical cable of claim 54 wherein each of said plurality of electrical conductors has a non-rectangular cross section.

[C058] 58. The electrical cable of claim 49 wherein:

a subset of said electrical conductors is electrically coupled at a first end of said cable assembly to produce a first coupled subset leaving an uncoupled remainder of said electrical conductors; and

said uncoupled remainder of said electrical conductors is electrically coupled at a second end of said cable assembly to produce a second coupled subset.

[C059] 59. The electrical cable of claim 58 wherein said first end and said second end are at opposite ends of said cable assembly.

[C060] 60. The electrical cable of claim 58 wherein:

members of said first coupled subset have different respective lengths; and

members of said second coupled subset have lengths in one-to-one correspondence with said different respective lengths of said members of said first coupled subset.

[C061] 61. The electrical cable of claim 58 further comprising a first insulating gap at a first gap location along the length of said first coupled subset.

[C062] 62. The electrical cable of claim 61 further comprising a second insulating gap at a second gap location along the length of said second coupled subset.

[C063] 63. The electrical cable of claim 54 wherein plurality of electrical conductors are bonded to opposite faces of said cable substrate.

[C064] 64. The electrical cable of claim 54 wherein said electrical conductors are disposed on an outer surface of said cable assembly.

[C065] 65. The electrical cable of claim 54 further comprising an insulating strip, said ribbon being folded around said insulating strip.

[C066] 66. The electrical cable of claim 54 wherein said plurality of electrical conductors form diagonal patterns.

[C067] 67. The electrical cable of claim 66 wherein:

said diagonal patterns are formed on opposite faces of said cable substrate,
opposite face pairs of said electrical conductors being electrically coupled at edges of said cable substrate.

[C068] 68. The electrical cable of claim 66 wherein:

said diagonal patterns are formed on opposite faces of said cable substrate,
said opposite faces of said cable substrate and said electrical conductors having coupling holes therethrough,

opposite face pairs of said electrical conductors being electrically coupled through said coupling holes.

[C069] 69. The electrical cable of claim 54 wherein said plurality of electrical conductors comprise an electrically conducting ink.

[C070] 70. An electrical cable comprising:

a cable substrate; and

a plurality of electrical conductors bonded to said cable substrate and being spaced apart from neighboring ones of said electrical conductors to form a ribbon, said electrical conductors being electrically insulated from said respective neighboring ones,

said ribbon being folded to form cable assembly, each of said electrical conductors traversing the width of said cable assembly at least twice,

said cable assembly optionally being bonded,

said cable assembly optionally being coiled.

[C071] 71. The electrical cable of claim 70 wherein said electrical conductors do not describe spirals around said cable assembly.

[C072] 72. The electrical cable of claim 70 wherein said act of folding said ribbon comprises bending said ribbon to form a corner.

[C073] 73. The electrical cable of claim 70 , said cable assembly being folded lengthwise.

[C074] 74. The electrical cable of claim 70 further comprising a bonding layer disposed on said ribbon, said bonding layer being optionally electrically insulating.

[C075] 75. The electrical cable of claim 70 wherein said cable substrate is electrically insulating.

[C076] 76. The electrical cable of claim 70 wherein each of said plurality of electrical conductors has a non-rectangular cross section.

[C077] 77. The electrical cable of claim 70 wherein:

a subset of said electrical conductors is electrically coupled at a first end of said cable assembly to produce a first coupled subset leaving an uncoupled remainder of said electrical conductors; and

said uncoupled remainder of said electrical conductors is electrically coupled at a second end of said cable assembly to produce a second coupled subset.

[C078] 78. The electrical cable of claim 77 wherein said first end and said second end are at opposite ends of said cable assembly.

[C079] 79. The electrical cable of claim 77 wherein:

members of said first coupled subset have different respective lengths; and

members of said second coupled subset have lengths in one-to-one correspondence with said different respective lengths of said members of said first coupled subset.

[C080] 80. The electrical cable of claim 77 further comprising a first insulating gap at a first gap location along the length of said first coupled subset.

[C081] 81. The electrical cable of claim 80 further comprising a second insulating gap at a second gap location along the length of said second coupled subset.

[C082] 82. The electrical cable of claim 70 wherein plurality of electrical conductors are bonded to opposite faces of said cable substrate.

[C083] 83. The electrical cable of claim 70 wherein said electrical conductors are disposed on an outer surface of said cable assembly.

[C084] 84. The electrical cable of claim 70 further comprising an insulating strip, said ribbon being folded around said insulating strip.

[C085] 85. The electrical cable of claim 70 wherein said plurality of electrical conductors form diagonal patterns.

[C086] 86. The electrical cable of claim 85 wherein:

said diagonal patterns are formed on opposite faces of said cable substrate,
opposite face pairs of said electrical conductors being electrically coupled at edges of said cable substrate.

[C087] 87. The electrical cable of claim 85 wherein:

said diagonal patterns are formed on opposite faces of said cable substrate,
said opposite faces of said cable substrate and said electrical conductors having coupling holes therethrough,
opposite face pairs of said electrical conductors being electrically coupled through said coupling holes.

[C088] 88. The electrical cable of claim 70 wherein said plurality of electrical conductors comprise an electrically conducting ink.